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# Retail market structure and the threat by the manufacturer to sell goods directly to the consumer

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## Abstract

When a manufacturer and its retailers and consumers are spatially separated, the retailers' market size may be limited by the manufacturer who provides consumers with an option to purchase goods directly from them. The manufacturer uses this tactic to increase profit when a few retailers dominate the market. The mill price of a manufacturer, that is, the price of the good at delivery from a manufacturer's factory, is critical under these circumstances.

If the manufacturer charges a franchise fee, thus absorbing the retailer's profit, this fee is a function of the mill price. Mill price policy can be used to maximize profit on the sale of goods and collection of the franchise fee. The resulting retail market structure becomes preferable for the manufacturer and consumers since the manufacturer's profit is larger, as is the quantity purchased, compared with a competitive equilibrium in which every firm entering the market area is assumed to move its location instantly without cost.

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## 1. Introduction

It is normally assumed in spatial equilibrium analysis that production and selling are integrated within a firm. Under this assumption, the firm's market area and the price of its good are derived and compared among spatial (monopoly, oligopoly and free-entry) retail markets. However, production and selling are generally managed independently in firms. What interests us in this separation of production and selling is how a manufacturer of the good relates itself to the retail market for that good, including the nature of their economic relationship.

There exist various interesting spatial economic relationships between the manufacturer and its retailers. It is well known that manufacturers use various restrictions and conditions as a means of

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expanding profits and market share. In the 1980s, research began on manufacturers' restrictive measures towards retailers. This work considered the geographical distance between a manufacturer and its retailers and consumers, e.g. [1–4].

Other studies have concentrated on such restrictive means as resale price maintenance, upper- and lower-price ceilings, limitation of sales, and territory.<sup>1</sup> The current paper proposes another means—limiting retailers' market size by providing consumers with an option to purchase goods directly from the manufacturer.

This paper consists of seven sections. Section 2 explains the basic ingredients of the model. Section 3 analyzes the manufacturer's profit and the composition of a retail market in the case where the former does not intervene in the latter other than setting the profit-maximizing mill price. Section 4 assumes that the state of the market is dominated by a few retailers and shows retailers' prices and profits as well as the manufacturer's profit. Section 5 proposes a method for a manufacturer to intervene in an oligopolistic retail market. We then show the retail market conditions needed for a manufacturer to pursue such an intervention. Section 6 introduces the franchise fee system to the measure described in Section 5. In addition, using earlier results, this section shows the effectiveness of the proposed restrictive means. Section 7 summarizes the findings of the paper.

## 2. Framework for the model

We now consider a spatial free-entry equilibrium in the retail market under manufacturer's restrictive measures against retailers. The following assumptions are made: The manufacturer is located at the center of the circle  $O$ , as shown in Fig. 1. Consumers reside evenly with density 1 on the circumference of the circle, which has a radius  $U$ . Each consumer purchases goods from that retailer who offers the lowest delivered price. Retailers locate on this circumference, buy goods from the manufacturer, and sell them to consumers at the profit-maximizing price.

Each consumer has a demand Function (1):

$$q = a - p - t\theta U, \quad (1)$$

where  $q$  is the quantity demanded by each consumer,  $a$  is the consumer's maximum reservation price,  $p$  is price of a good,  $t\theta U$  is the transportation cost from the consumer to the retailer,  $t$  is transport cost per mile between a retailer and a consumer,  $\theta$  is the angle formed by the lines connecting a consumer, the center  $O$ , and a retailer, and  $\theta U$  is the distance from the retailer to the consumer.

The retailer's profit,  $Y_r$ , is given by:

$$Y_r = (p_r - p_m - C_r)Q - F_r, \quad (2)$$

where  $p_r$  is the retailer's price,  $p_m$  is the manufacturer's mill price (i.e., the price of the product at a manufacturer's factory),  $C_r$  is retailer's marginal cost, and  $F_r$  is retailer's fixed costs.

<sup>1</sup> For an analysis of resale price systems, see [8,14]; for franchise systems, see [15]; for territory systems, see [11,12].

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